FINN 6211 Risk Management and Fixed Income Derivatives
Spring 2012

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Department of Finance
Belk College of Business
University of North Carolina at Charlotte

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Office Phone: (704) 687-7652
Email: tking3@uncc.edu
Class Meeting Day/Time: Monday 5:30pm - 8:15pm, 602 Center City
Office Hours: Monday 4:30pm - 5:30pm Center City or by Appointment

Prerequisite: FINN 6210 Derivatives I: Financial Elements of Derivatives


Course Objective:

The purpose of this course is to introduce the students to various aspects of the fixed-income markets. Topics include the basic concepts of the fixed income securities, interest rates and yield curve, bond volatility measures, major fixed income sectors, bond portfolio management, and hedging.

The material in this course is inherently quantitative. We will also introduce institutional details of the markets and market participants. Overall, you will get a big picture of the fixed income securities and markets. By the end of the course, you should expect to be able to

- Master the basic concepts of bond mathematics: yields, duration, and convexity.
- Understand the determinants of term structure
- Learn about various sectors and participants in the fixed income security market, including the international markets
- Grasp the structure and valuation of bonds with embedded options
- Learn about bond performance measures and portfolio management
- Explore the structure and tools for hedging strategies
Preparing for Class

Lecture notes will be made available prior to the class sessions. Please bring your notes to class to follow along the lecture presentation. Most lectures are supplemented with required readings from the Fabozzi text and supplemental readings from the Tuckman text. All lecture notes will be posted on the course web-site. I will also post class announcements, syllabus, assignments, formula sheets, and other supplemental materials during the semester on the course web site. The link to the course web site will be emailed to everyone on the first day of class (Jan 9).

Homework Assignments

There will be two homework assignments for this class. The posting and due dates are shown in the course schedule below.

Examination

There will be a midterm exam during the semester and a final exam. Each examination will include calculation-type problems and discussion-type questions. A formula sheet will be provided for each exam. Please see the course schedule below for the dates of the exams. Check your schedule to make sure that no scheduling conflicts arise.

Make-up exams will be arranged ONLY IF your absence is work-related and cannot be avoided. For planned absences (such as business travel or conferences), please let me know as soon as you are aware of these events so we can arrange for an alternative time for the exam. In the event of absence due to emergencies, the weight of one exam will be assigned to the other exam. For either planned or emergency-related absences, please provide supporting documents for the absence (for example, a doctor’s note, business travel itinerary, etc.).

Research Project

You are required to form a group of 2 to 3 students to work on a research project on one type of fixed income securities or derivatives. Once you have formed a group, decide on which particular fixed income instrument you would like to research on. You need to do a thorough research on this instrument and include in your project report the following items: (1) Current size, breadth and depth of the market, (2) main players, (3) purpose(s) of this instrument, (4) conditions of the secondary market, (5) risks in the instrument, and (6) how this instrument is valued in a theoretical framework. The attached document (at the end of the syllabus) titled “Research Project on Fixed Income Securities” contains the detailed requirements and instructions for the project. You need to submit a one-page proposal by Monday, February 13, 2012. The final report is due Monday, May 7, 2012.
Grading:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Two HW Assignments</td>
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<tr>
<td>Midterm Exam</td>
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<td>Final Exam</td>
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<td>Research Project</td>
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<td><strong>Total</strong></td>
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Grade Range:  
A: 90 to 100  
B: 80 to 89  
C: 70 to 79, etc.  

*Grades will be curved is necessary.*

UNC Charlotte “Code of Student Academic Integrity” (the Code)

All UNC Charlotte students have the responsibility to be familiar with and to observe the requirements of The UNC Charlotte Code of Student Academic Integrity (see the Catalog). This Code forbids cheating, fabrication or falsification of information, multiple submission of academic work, plagiarism, abuse of academic materials (such as Library books on reserve), and complicity in academic dishonesty (helping others to violate the Code). Any further specific requirements or permission regarding academic integrity in this course will be stated by the instructor, and are also binding on the students in this course. Students who violate the Code can be punished to the extent of being permanently expelled from UNC Charlotte and having this fact recorded on their official transcripts. The normal penalty is zero credit on the work involving dishonesty and further substantial reduction of the course grade. In almost all cases, the course grade is reduced to "F." If you do not have a copy of the Code, you can obtain one from the Dean of Students Office or access it online at [http://www.legal.uncc.edu/policies/ps-105.html](http://www.legal.uncc.edu/policies/ps-105.html). Standards of academic integrity will be enforced in this course. Students are expected to report cases of academic dishonesty they become aware of to the course instructor who is responsible for dealing with them.

Use of Cell Phones and Other Communications Devices

The use of cell phones or other communication devices is disruptive, and is therefore prohibited during class. Except in emergencies, those using such devices must leave the classroom for the remainder of the class period.

Disability Services

Students in this course seeking accommodations to disabilities must first consult with the Office of Disability Services (phone 704-687-4355, 230 Fretwell Building) and follow the instructions of that office for obtaining accommodations.
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Readings</th>
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<tbody>
<tr>
<td>Jan 9</td>
<td>Introduction to the Fixed Income Securities (Lecture 1)</td>
<td>Fabozzi Ch.1.</td>
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<td>Tuckman Ch. 1</td>
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<td>Sundaresan Ch. 1</td>
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<td>Jan 16</td>
<td>Dr. Martin Luther King Jr. Day, No Class</td>
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<tr>
<td>Jan 23</td>
<td>Lecture 1, continued Bond Valuation and Yields (Lecture 2)</td>
<td>Fabozzi Ch. 2, 3</td>
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<td>Tuckman Ch. 2, 3</td>
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<td>Sundaresan Ch. 2</td>
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<td>Jan 30</td>
<td>Bond Price Volatility (Lecture 3)</td>
<td>Fabozzi Ch. 4</td>
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<td>Tuckman, Ch. 5, 6</td>
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<td>Sundaresan Ch. 7</td>
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<td>Feb 6</td>
<td>Lecture 3, continued Factors Affecting Bond Yields and the Term</td>
<td>Fabozzi Ch. 5</td>
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<td>Structure of Interest Rates (Lecture 4)</td>
<td>Tuckman Ch. 4</td>
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<td>Sundaresan Ch. 3, 8</td>
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<td>Feb 13</td>
<td>Lecture 4, continued Major Fixed Income Sectors, Part 1</td>
<td>Fabozzi Ch. 6, 7</td>
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<td>Treasury, Agency, Corporate (Lecture 5)</td>
<td>Sundaresan Ch. 6</td>
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<td><strong>HW #1 Posted!</strong></td>
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<td><strong>Research Project One-Page Proposal Due!</strong></td>
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<td>Feb 20</td>
<td>Lecture 5, continued Major Fixed Income Sectors, Part 2</td>
<td>Fabozzi Ch. 8, 9</td>
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<td>Municipal Securities, Non-U.S. Bonds (Lecture 6)</td>
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<td>Feb 27</td>
<td>Lecture 6, continued Mortgaged Backed Securities (Lecture 7)</td>
<td>Fabozzi Ch. 10, 11</td>
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<td><strong>HW#1 Due!</strong></td>
<td>Tuckman Ch. 21</td>
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<td>Sundaresan Ch. 11, 12</td>
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<td>Mar 5</td>
<td>Spring Break, No Class!</td>
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<td>Mar 12</td>
<td>Lecture 7, continued</td>
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<td>Mar 19</td>
<td><strong>Midterm Exam (closed-books and notes), 5:30pm to 7:30pm</strong></td>
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<td>Mar 26</td>
<td>CMOs (Lecture 8)</td>
<td>Fabozzi Ch. 12, 13</td>
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<td>Date</td>
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<td>Apr 2</td>
<td>Lecture 8, continued&lt;br&gt;Bonds with Embedded Options (Lecture 9)</td>
<td>Fabozzi Ch. 18, 20</td>
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<td>Apr 9</td>
<td>Lecture 9, continued</td>
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<td>Apr 16</td>
<td>Bond Portfolio Management (Lecture 10, Part 1)&lt;br&gt;&lt;br&gt;HW #2 Posted!</td>
<td>Fabozzi Ch. 23</td>
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<td>Apr 23</td>
<td>Hedging (Lecture 10, Part 2)</td>
<td>Tuckman Ch. 7</td>
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<td>Apr 30</td>
<td>Fixed Income Derivatives (Lecture 11)&lt;br&gt;Credit Risk (Lecture 12)&lt;br&gt;&lt;br&gt;HW#2 Due!</td>
<td>Fabozzi Ch. 29&lt;br&gt;Fabozzi Ch. 21&lt;br&gt;Sundaresan Ch. 10</td>
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<tr>
<td>May 7</td>
<td>Final Exam (closed-books and notes)&lt;br&gt;5:00pm to 7:30pm (according to university final exam schedule)&lt;br&gt;Research Project Final Report Due!</td>
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Useful Web Links

**Bond Markets**
A time-series of the 10-year yield on MSN:


General discussion of today’s events in the bond market, with the current yield curve:

Historical data on interest rates:
**Federal Reserve Interest Rate data**: [http://www.federalreserve.gov/releases/h15/update/](http://www.federalreserve.gov/releases/h15/update/)

**Emerging Market Debt**: [http://www.brady.net](http://www.brady.net)

**US Municipal Bond Market**:
- [http://www.msrb.org/](http://www.msrb.org/)
- [http://www.emuni.com](http://www.emuni.com)
- [http://www.themunicenter.com](http://www.themunicenter.com)
- [http://www.fmsbonds.com](http://www.fmsbonds.com)

**Bond Resources**
Detailed information on the bond markets:
- **General Information on bonds**:
  - [http://www.bondsonline.com](http://www.bondsonline.com)
  - [http://www.bondsearch123.com](http://www.bondsearch123.com)
  - [http://www.bondbuyer.com](http://www.bondbuyer.com)
  - [http://www.jbh.com](http://www.jbh.com)

**Exchanges and Derivatives**
Organized futures and options exchanges:
- **Chicago Mercantile Exchange**: [http://www.cme.com](http://www.cme.com) (Eurodollar futures and options)
- **Chicago Board of Trade**: [http://www.cbot.com](http://www.cbot.com) (T-bond futures and options)

The International Swap Dealer Association is at

**Credit Rating Agencies**
- **Fitch**: [http://www.fitch.com/](http://www.fitch.com/)

**Bond Managers**
Leading fixed-income managers:
Research Project on Fixed Income Securities

Project Guidelines

This is a research project to be done in groups of two to three members. Once you have selected your group members, choose a particular fixed income security that you and your group members are interested in. You are given the task to research this particular fixed income security for potential investing opportunities for your firm. Your firm can be a mutual fund company, investment bank, commercial bank, insurance company, brokerage firm, or any other financial institution. Since the focus of the project is to provide a general (but thorough) understanding of the fixed income security you have chosen, you are free to choose any type of fixed income security regardless of the type of firm you are working for. However, if you like, you are welcome to first assume which type of firm you are working for (e.g., mutual fund) and then choose the type of fixed income security you deem appropriate (and most importantly, interesting!).

You are required to at a minimum report on the following items for the particular fixed income security:

1. Current size, breadth, and depth of the market: A basic descriptive statistics of the fixed income security. Find the most current data (i.e., 2000 and after).
2. Main players: Issuers, buyers, and other servicing institutions.
3. Purpose(s) of this instrument: The primary purpose(s) of the instrument. Other secondary uses of the instrument if any.
4. Current conditions of the secondary market: How active is the market? What are the transaction costs? Minimum investment amount required in a trade? How are the instruments quoted?
5. Risks in the instrument: Identify and discuss in detail the various types of risks in the instrument. Provide examples whenever possible.
6. Valuation: This part should tie in with part (5) closely. From a theoretical point of view, how is this instrument valued? In other words, how should we calculate its intrinsic value?
Format
The report should include the following sections: introduction, description of instrument (Parts (1) – (4) above should be incorporated into this section), risk analysis (Part (5) above should be incorporated here), valuation analysis (Part (6) above should be incorporated here), and conclusion. Please double-space the body text of the report. Any tables or figures should be clearly referenced in the text.

Once you have finished the report, summarize your findings into a one-page executive summary which is separate from the report. The executive summary should be single-spaced and contain summary and highlights of the full report. The executive summary should immediately follow the cover page of your report.

Grading
The grading is based on the amount of information contained towards a practical understanding of a potential investment in the instrument you have chosen. You should not share or borrow any information from other groups.

Due Dates
Proposal is due on Monday February 13, 2012. A one-page proposal stating the group member names, the fixed income instrument you have chosen, the reason for the choice, and what you expect to learn from this project.

Final Report is due on Monday May 7, 2012. The final project report should contain at the minimum the six elements stated above. You are encouraged to include additional interesting analyses and discussions in your final report!